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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,671

09/28/2006

Masahiro Tojo

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EXAMINER

SHIAO, REI TSANG

ART UNIT

PAPER NUMBER

1626

NOTIFICATION DATE

DELIVERY MODE

02/27/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<i>Office Action Summary</i>	Application No.	Applicant(s)	
	10/594,671	TOJO ET AL.	
	Examiner	Art Unit	
	REI-TSANG SHIAO	1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2008.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 6-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/25/07, 9/28/06, 6/23/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This application claims benefit of the foreign application:
JAPAN 2004-179799 with a filing date 06/17/2004.
2. Claims 1-8 are pending in the application.

Information Disclosure Statement

3. Applicant's Information Disclosure Statements filed on September 28, 2006, January 25, 2007, and June 23, 2008 have been considered. Please refer to Applicant's copies of the 1449's submitted herein.

Responses to Election/Restriction

4. Applicant's election with traverse of election of Group I claims 1-5 in the reply filed on November 25, 2008 is acknowledged. Election of the compound of the formula, i.e., $\text{CH}_3\text{OCH}_2\text{CH}_2\text{OCOOCH}_3$, as the single species is also acknowledged. The traversal is on the grounds that additional invention groups identified by the Examiner could efficiently be examined in this application along with the elected invention without undue burden on the Examiner or the USPTO. This is found not persuasive, and the reasons are given *infra*.

Claims 1-8 are pending in the application. The scope of the invention of the elected subject matter is as follows.

Claims 1-5 are drawn to processes of making dialky carbonate of formula (2) and diol.

The claims 1-8 herein lack unity of invention under PCT rule 13.1 and 13.2 since the compounds defined in the claims lack a significant structural element qualifying as the special technical feature that defines a contribution over the prior art of dialkyl carbonate, see Tojo et al. US 6,346,638. Tojo et al. disclose similar dialkyl carbonate compounds of formula (C), see columns 10 and 33-34. Accordingly, unity of invention is considered to be lacking and restriction of the invention in accordance with the rules of unity of invention is considered to be proper. Furthermore, even if unity of invention under 37 CFR 1.475(a) is not lacking, which it is lacking, under 37 CFR 1.475(b) a national stage application containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn only to one of the following combinations:

- (1) A product and a process specially adapted for the manufacture of said product', or
- (2) A product and a process of use of said product; or
- (3) A product, a process specially adapted for the manufacture of the said product, and a use of the said product; or
- (4) A process and an apparatus or means specifically designed for carrying out the said process; or
- (5) A product, a process specially adapted for the manufacture of the said product, and an apparatus or means specifically designed for carrying out the said process.

And, according to 37 CFR 1.475(c)

if an application contains claims to more or less than one of the combinations of categories of invention set forth in paragraph (b), unity of invention might not be present.

However, it is noted that unity of invention is considered lacking under 37 CFR 1.475(a) and (b). Therefore, since the claims are drawn to more than a product, and according to 37 CFR 1.475 (e)

the determination whether a group of inventions is so linked as to form a single general inventive concept shall be made without regard to whether the inventions are claimed in separate claims or as alternatives within a single claim.

The claims lack unity of invention and should be limited to only a product, or a process for the preparation, or a use of the said product. In the instant case, Groups I-II are drawn to various products, processes of making, and the final products do not contain a common technical feature or structure, and do not define a contribution over the prior art, i.e., similar dialky carbonate compounds of Tojo et al. Moreover, the examiner must perform a commercial database search on the subject matter of each group in addition to a paper search, which is quite burdensome to the examiner.

Claims 1-5 are prosecuted in the case. Claims 6-8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention.

The requirement is still deemed proper and is therefor made FINAL.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the instant diol compounds represent compounds of formula (D), does not reasonably provide enablement for instant diol compounds are not limited (i.e., no formula), see claim 1. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

In *In re Wands*, 8 USPQ2d 1400 (1988), factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. 112, first paragraph, have been described. They are:

1. the nature of the invention,
2. the state of the prior art,
3. the predictability or lack thereof in the art,
4. the amount of direction or guidance present,
5. the presence or absence of working examples,
6. the breadth of the claims,
7. the quantity of experimentation needed, and
8. the level of the skill in the art.

In the instant case:

The nature of the invention

The nature of the invention is a process of making dialky compounds of formula (2) and diol compounds, wherein the diol compound are not limited (i.e., no formula), see claim 1.

The state of the prior art and the predictability or lack thereof in the art

The state of the prior art is Tojo et al. similar diol compounds of formula (D), see column 15.

The amount of direction or guidance present and the presence or absence of working examples

The only direction or guidance present in the instant specification is the diol compounds of formula (D), see page 20 of the specification. There is no data present in the instant diol compounds, which are not limited.

The breadth of the claims

The instant breadth of the rejected claims is broader than the disclosure, specifically, the instant claims include any diol compounds, which are not limited.

The quantity or experimentation needed and the level of skill in the art

While the level of the skill in the chemical arts is high, it would require undue experimentation of one of ordinary skill in the art to resolve any diol compounds, which are not limited. There is no guidance or working examples present for

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constitutional any diol compounds, which are not limited. Incorporation of the limitation of the limitation of diol compounds of formula (D) into claim 1 would overcome this rejection. Dependent claims 2-5 are also rejected along with claim 1 under 35 U.S.C. 112, first paragraph.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tojo et al. US 6,346,638 or US 6,479,689.

Applicants claim a process of making dialkyl carbonate and a diol by reacting cyclic carbonate with aliphatic monohydric alcohol, comprising withdrawing a dialkyl carbonate-containing liquid and/or diol-containing liquid, in the presence of catalyst, see claim 1.

Determination of the scope and content of the prior art (MPEP §2141.01)

Tojo et al. '638 or '689 respectively discloses a process of making dialkyl carbonate and a diol by reacting cyclic carbonate of formula (A) with aliphatic monohydric alcohol of formula (B), comprising continuously withdrawing a dialkyl carbonate and diol, in the presence of catalyst, see columns 33-44 of Tojo et al. '638, or see columns 43-44 of Tojo et al '689.

Determination of the difference between the prior art and the claims (MPEP §2141.02)

The difference between the instant claims and Tojo et al. '638 or '689 respectively is that the instant processes comprising withdrawing a dialkyl carbonate (i.e., step (b)) and diol, (i.e., step (c)) in order or simultaneously, while Tojo et al. '638 or '689 respectively are operated simultaneously. Tojo et al. '638 or '689 processes inherently overlap with the instant invention respectively.

Finding of prima facie obviousness-rational and motivation (MPEP §2142-2143)

One having ordinary skill in the art would find the claims 1-5 prima facie obvious because one would be motivated to employ the processes of Tojo et al. '638 or '689, wherein dialkyl carbonate and a diol are prepared by reacting an cyclic carbonate with aliphatic monohydric alcohol in the presence of a catalyst, and a dialkyl carbonate (i.e., step (b)) and diol, (i.e., step (c)) are withdrawn in order or simultaneously. Dependent claims 2-5 are also rejected along with claim 1 under 35 U.S.C. 103(a).

The motivation to make the claimed processes derived from the known processes of Tojo et al. '638 or '689 would possess similar yields to that which is claimed in the reference.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11

F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of Tojo et al. US 6,346,638 or claim 1 and 8 of Tojo et al. US 6,479,689. Although the conflicting claims are not identical, they are not patentably distinct from each other and reasons are as follows.

Applicants claim a process of making dialkyl carbonate and a diol by reacting cyclic carbonate with aliphatic monohydric alcohol, comprising withdrawing a dialkyl carbonate-containing liquid and/or diol-containing liquid, in the presence of catalyst, see claim 1.

Tojo et al. '638 or '689 respectively claims a process of making dialkyl carbonate and a diol by reacting cyclic carbonate of formula (A) with aliphatic monohydric alcohol of formula (B), comprising continuously withdrawing a dialkyl

carbonate and diol, in the presence of catalyst, see columns 33-44 of Tojo et al. '638, or see columns 43-44 of Tojo et al '689.

The difference between the instant claims and '638 or '689 respectively is that the instant processes comprising withdrawing a dialkyl carbonate (i.e., step (b)) and diol, (i.e., step (c)) in order or simultaneously, while Tojo et al. '638 or '689 respectively are operated simultaneously. Tojo et al. '638 or '689 processes inherently overlap with the instant invention respectively.

One having ordinary skill in the art would find the claims 1-5 prima facie obvious because one would be motivated to employ the processes of Tojo et al. '638 or '689, wherein dialkyl carbonate and a diol are prepared by reacting an cyclic carbonate with aliphatic monohydric alcohol in the presence of a catalyst, and a dialkyl carbonate (i.e., step (b)) and diol, (i.e., step (c)) are withdrawn in order or simultaneously. Dependent claims 2-5 are also rejected along with claim 1 under obviousness-type double patenting.

The motivation to make the claimed processes derived from the known processes of Tojo et al. '638 or '689 would possess similar yields to that which is claimed in the reference.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rei-tsang Shiao whose telephone number is (571) 272-0707. The examiner can normally be reached on 8:30 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph

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K. McKane can be reached on (571) 272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/REI-TSANG SHIAO /

Rei-tsang Shiao, Ph.D.
Primary Examiner
Art Unit 1626

February 17, 2009